

REMARKS

Claims 11-18, 20, and 71 are pending. Claims 1-10, 19, 21-70, 72--80 are canceled.

Support for the amendments to claims 11 and 71 is found in FIG. 1 of the as-filed application.

The present invention now requires that the threadform extend from the outer surface (axial cross section) of the longitudinal portion. Since the ultrasound transducer must be associated with the longitudinal portion of the probe, and the threadform must extend from the longitudinal portion of the probe, the present invention requires that the ultrasound transducer must be physically separate from the threadform.

Claims 71 and 75 stand rejected under 35 USC 102 as being anticipated by US Patent No. 6,895,267 ("Panescu")

The Examiner has taken the position that Panescu discloses a probe having energy delivery members 33,35,37, wherein the energy delivery members can be ultrasound transducers (col. 3, lines 15-17) and the longitudinal section of the probe may be provided in a helical shape (FIG. 2b)

Applicants respectfully traverse. Since FIG. 1 of Panescu discloses energy delivery members 33,35,37 located upon the curved portion of the probe, it is a reasonable to conclude that the probe of FIG. 2b of Panescu would also have ultrasound transducers located upon its curved portion, that is, within the helical portion of the probe.

In contrast, claim 71 of the present invention requires the ultrasound transducers to be present within the longitudinal portion. Because Panescu reasonably teaches

provision of the ultrasound transducer in the helix, Panescus does not disclose ultrasound transducers present within the longitudinal portion.

In addition, Panescu discloses a probe wherein the helical portion extends from the distal end of the probe, not from the outer surface (axial cross-section) of the longitudinal portion, as required by claim 71.

Therefore, for these reasons, the present anticipation rejection should be withdrawn.

Claims 11-14, 17, 18, 71 and 75 stand rejected under 35 USC 103 as being unpatentable over USP 6,533,804 (Dobak) in view of US Patent No. 6,427,089 (Knowlton).

The Examiner has taken the position that modifying the Dobak device with ultrasonic transducers to provide heat energy to a fluid within the heat transfer catheter would have been obvious, since Knowlton teaches the use of alternative energy sources to provide heat energy to heat transfer catheters.

Applicants respectfully traverse. Dobak discloses two probe configurations for heat transfer: the cylindrical shaped probe provided in FIG. 1 and the helical shaped probe provided in FIG. 2. Dobak makes the clear the helical shape has been selected specifically to enhance heat transfer from the probe to the surrounding fluid:

The shape of the outlet lumen 20 in FIG. 2 is helical. This helical shape presents a cylindrical obstacle, in cross-section, to the flow of blood. Such obstacles tend to create turbulence in the free stream of blood. In particular, the form of turbulence is the creation of von Karman vortices in the wake of the flow of blood, downstream of the cylindrical obstacles.(col. 9, lines 47-53)

Another consideration is the angle α of the helix. Angle α should be determined to optimize the helical motion of the blood around the lumens

20 and 22, enhancing heat transfer. Of course, angle α should also be determined to optimize the helical motion of the working fluid within the lumens 20 and 22. The helical motion of the working fluid within the lumens 20 and 22 increases the turbulence in the working fluid by creating secondary motions. In particular, helical motion of a fluid in a pipe induces two counter-rotating secondary flows.(col. 10, lines 3-13)

Since Dobak teaches that the helical shape is selected specifically for helping conductive heat transfer, but ultrasound devices do not provide heat via conductive heat transfer, the Applicant takes the position that, if an ultrasound catheter of Knowlton were to replace the circulating fluid of Dobak, then there would be no need for a helical shaped probe. Therefore, the proposed combination of references can not be made.

In addition, there is a second reason for the patentability of claim 11. Whereas claim 11 requires the threadform to extend from the outer surface (axial cross section) of the longitudinal portion of the probe, the helical portion of the Dobak tube extends from the proximal and distal ends of the lumen 22, not from the outer surface of the longitudinal portion of the Dobak probe.

For these reasons, the present rejection should be withdrawn.

Claims 15 and 16 stand rejected under 35 USC 103 as being unpatentable over US Patent No. 6,533,804 (Dobak) in view of US patent No. 5,411,509(Hilal).

Claim 15 and 16 depend from claim 11 and so are patentable for the reasons discussed above.

In addition, the Examiner noted that Dobak discloses a helical shaped balloon member, while Hilal teaches providing a foam portion on a catheter to allow the catheter to be shaped as desired, and concluded that it would have been obvious to modify Dobak with a malleable foam material to provide a more resilient balloon member.

Applicant respectfully traverses. As amended Claim 15 requires that the helical threadform consist essentially of foam. In contrast, modification of Dobak helix with the Hilal foam would likely provide foam around a helical tube carrying heating water. To make the entire Dobak helix out of foam would eliminate the tubular nature of the Dobak helix, prevent the flow of a heating fluid therethrough and thereby defeat the entire purpose of Dobak.

For this reason, the present rejection should be withdrawn.

The undersigned respectfully requests a telephonic interview before the mailing of the next Office Action.

In addition, please provide any additional extensions of time which may be necessary and charge any fees which may be due to Deposit Account No. 10-0750, but do not include any payment of issue fees.

Should there be any remaining or further questions, the Examiner is requested to place contact the undersigned directly.

Respectfully submitted,

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